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ABSTRACT

This report studied the predictive validity of the Scholastic Aptitude Test (SAT) for older students (early twenties to late fifties) at three universities and students' reactions to the admissions process. Analysis supports the use of SATs with local prediction equations. Interviews with older students suggest that their range of circumstances requires a sensitive use of any such instrument and effective counseling. Recommendations to the College Board include: the regular retention of SAT candidates' ages at Educational Testing Service to facilitate future research in this area; information and leadership on adult admissions provided by the College Board, both to institutions and to candidates; and further research on the assessment of adults' pre-admission experiences. Older female students were found to obtain higher grades than those predicted from test scores and high school grades. The author concludes that using both test scores and high school grades will improve the grade prediction significantly over either predictor used alone. (Author/PN)

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College Board Report

No. 82-8

Older Students and the SAT

Patricia Lund Casserly

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Educational Testing Service

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College Entrance Examination Board, New York, 1982

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ABSTRACT

This report studied the predictive validity of the SAT for older students at three universities, and students' reactions to the admissions processes they had undergone. Analysis supports the use of SATs with local prediction equations. Interviews with older students suggest that their range of circumstances requires a sensitive use of any such instrument – and effective counseling. Recommendations to the College Board include: 1) the regular retention of SAT candidates' *ages* at ETS to facilitate future research in this area; 2) information and leadership on adult admissions provided by the Board both to institutions and to candidates; and 3) further research on the assessment of adults' pre-admission experiences.

INTRODUCTION

Increasing numbers of learners are entering college after being away from formal education for years. These older students are becoming increasingly important to colleges as the number of 17- to 19-year-olds declines. For example, in 1979 the number of college students over 35 was 1,401,000, a figure nearly double that for 1972 (783,000). Women accounted for a large measure of this increase. While the number of older men increased from 365,000 to 487,000 (33 percent), the number of women increased from 418,000 to 914,000 (119 percent). These and other data comparing 1972 and 1979 college students by age, sex, and full-time/part-time status may be seen in Table 1.

Throughout the 1970s, as the age of college students rose, so too did the number of part-time students. Women make up a large portion of these part-time students. Although almost equal percentages of men and women are part-time students (83.4 versus 83.9) in the over-35 age group of Table 1, there are almost twice the absolute numbers of women as men in this category. (The percentages of part-time students are arrived at by substracting the percentages of full-time students – 16.6 versus 16.1 – reported in the table from 100.)

Many of these older students are asked or required to submit Scholastic Aptitude Test (SAT) scores as part of their admissions credentials, yet little has been published about the suitability of SAT (tests of developed ability) scores for predicting the college performance of students who did not proceed directly from high school to college.

Evidence from one study (Lunneborg, Olch, and deWolf 1974), which compared 153 "middle-aged" (over 35) undergraduates with college freshmen on the Washington Pre-College Test battery, found that the older students scored significantly higher than the freshmen on the vocabulary and spelling subtests and significantly lower on the quantitative skills, applied mathematics, and mathematical achievement subtests. (There were no significant differences on the other subtests.) There were significant sex differences between male and female older students on several subtests. Women scored higher on English usage and spelling; men scored higher on quantitative skills, applied mathematics,

Table 1. Full-Time Enrollment of College Students 14 Years Old and Over, by Age and Sex: October 1979 and 1972

	1979			*1972*		
		Full Time			*Full Time*	
Sex and Age	*All Students*	*Number*	*Percent*	*All Students*	*Number*	*Percent*
MALE						
14 and over	5,480	3,722	67.9	5,218	3,791	72.7
14 to 34	4,993	3,641	72.9	4,853	3,713	76.5
14 to 19	1,470	1,346	91.6	1,507	1,424	94.5
20 and 21	1,192	1,046	87.8	1,170	1,056	90.3
22 to 24	975	692	71.0	998	725	72.6
25 to 29	893	419	46.9	848	398	46.9
30 to 34	463	139	30.0	330	110	33.3
35 and over	487	81	16.6	365	78	21.4
FEMALE						
14 and over	5,900	3,517	59.6	3,877	2,655	68.5
14 to 34	4,986	3,370	67.6	3,459	2,601	75.2
14 to 19	1,686	1,546	91.7	1,467	1,373	93.6
20 and 21	1,161	980	84.4	946	830	87.7
22 to 24	818	480	58.7	464	231	49.8
25 to 29	786	248	31.6	381	109	28.6
30 to 34	533	116	21.8	200	57	28.5
35 and over	914	147	16.1	418	54	12.9

Source: Reference population characteristics, U.S. Department of Commerce, Bureau of the Census, August 1980.

mathematical achievement, spatial ability, and mechanical reasoning. The authors of that study found that "predicting grades . . . was best accomplished through multiple prediction using background factors in addition to test scores." They state, "Any attempt to predict grades in a middle-age college group should include background variables as well as tests of ability. High school grades, in spite of their age, are as good a predictor as any recent score." A study by the American College Testing Service (ACT) (1973), on the other hand, observing that "many colleges have noted that their older students obtain higher grades than those predicted from test scores and high school grades using one prediction equation based on all students," confirmed the observation in a series of analyses using ACT composite scores and high school percentile rank for groups of older and younger students. Similar results had been obtained in an earlier study that compared war veterans and younger students.

Data from ACT (Hanson and Lenning 1973) also show age and sex differences for ability measures. These authors report that older students "tend to earn much better grades than younger students even though their college entrance test scores are much lower." With respect to the question of the decline of tests scores with age, "a consistent overall decline in the ability measures was found for women but not for men." Men showed a slight decline only on mathematical reasoning and spatial relations. Women showed consistent declines for mechanical skills, nonverbal reasoning, clerical skills, numerical computation, mathematical reasoning, and spatial relations and a smaller decline for reading skills.

Data from the SAT show an increase in SAT-verbal scores with age and, after age 20, a decline in SAT-mathematical scores. Data from the College-Level Examination Program (CLEP) have shown a rise with age in humanities and social science scores (Sharon 1971). A study that compared the CLEP scores of adult women with those of college freshmen (Fagin 1971) found that women equaled the freshmen in social science but scored significantly less well in natural science. Fagin also found that the life experiences of these adult women had a significant relationship to their test scores.

It seems reasonable to assume that, with increasing numbers of older students seeking and gaining admission to institutions of higher education, there will be increasing attention to the issues of selection and admission of such students. A study of the relevance, appropriateness, and predictive validity of the SAT for older students was therefore recommended for support by the College Board, both for the information of policymakers in its constituency and for the Board itself.

The main purpose of this study was to learn something about the appropriateness of the SAT for use with older students. To this end, data reflecting SAT scores and subsequent grade point averages (GPAs) were collected and analyzed for a sample of students (some older and others of conventional age) from colleges that are known to use the SAT for admissions and that enroll substantial numbers of older students. Because there is some evidence to suggest that test scores underpredict the performance of older students and that multiple predictive models based on background variables do somewhat better at predicting grades, certain background characteristics were also examined for their value as potential predictors. Some of the questions that naturally arise in the context of a predictive validity study of older students are: To what extent are there differences between students of conventional college age and older students in the degree of predictive validity of the SAT for college performance? Are there differences among older students of various ages, e.g., 22-25, 26-30, 31-35, and over 35? Are the patterns of SAT-verbal and SAT-mathematical scores different for older students than for students of conventional college age? Are there sex differences in both the score distributions and patterns of predictive validity of the SATs for older students? Are there differences associated with specific institutions? This report answers some but not all of these questions.

A second purpose of the study was to learn something about the experiences of the older students themselves in the college application and admissions process, especially as the experiences relate to test taking in general and the SAT in particular. This purpose was served by a series of interviews with selected students from each institution. Topics pursued with these students included their past experience with the SAT and similar tests, their preparation for the most recent administrations, reflections on the difficulty of the tests and on the appropriateness to older students in general and to themselves in particular, perceptions about how accurately the most recent tests demonstrated their ability, and reflections on their broader college experiences and on the experiences of the years intervening between secondary school and college attendance.

PROCEDURE

The plan of the study was to identify colleges that require the SAT for all candidates for admission, that have sufficient numbers of older students in their entering classes, and that could provide GPAs and other information needed to do separate predictive validity studies for both older and younger students. These studies involve obtaining correlations between first-year college grades and SAT scores/high school grades. For the purpose of this study, older students were defined as those entering college for the first time at 21 years of age or older.

The sample for this study was therefore a purposive rather than a representative one. The goal of sample selection for this study was to maximize the number of older students for whom SAT scores were available. To this end,

College Board regional offices were asked to identify institutions known to attract a relatively large number of older students and also known to require the SAT of all students. From among the institutions so identified, ten were selected for inclusion in this study. Each of these institutions had at least 100 students who were 21 or over at the time of their admission as freshmen in the fall of 1979. The ten selected represent some variation in geographic location, type, and size of institution. However, as noted, the main requirements for inclusion of institutions in the study were enrollment of significantly large numbers of older students and requirement of the SAT.

This institutional selection procedure was more difficult than had been anticipated. More than 120 colleges and universities were contacted to obtain the initial sample of ten institutions. Two of these ten were later dropped because they were participating in the Georgia State University System's own validity study of the SAT for older students (which is also being supported by the College Board). Four other colleges dropped out when they found they could not supply the information needed for this study within the necessary time limits. One university sent incomplete and unusable information eight months late. This diminishing number of institutions, from more than 120 potentially participating colleges to ten and then to three, was much greater than the authors would have wished. More than half the colleges contacted through this study did require the SAT of older as well as younger students, but did not have sufficient numbers of the former to participate. Among the other half were found a variety of admissions procedures that were especially designed for older students and did not require the SAT. These procedures and the rationale for their use are described later in this report.

The three institutions remaining in the study are the main campus of a large state university and two branches within another state university system. The three provided the following information for each older student in the target class: name, sex, race, date of birth, most recent SAT scores, older SAT scores (if available), high school rank (HSR) in class or high school GPA, first-year college GPA, student status (full or part time), transfer credit hours (if any), and probable major field. Similar information was requested on a matched sample of younger students in the same class.

It was hoped that the samples of older students would be large enough to do separate analyses by "older" and "recent" SAT scores, increments of age, ethnicity, probable major field, student status (full or part time), and so on, but this proved to be impossible. Information about the recentness of the SAT scores was lost when colleges reduced data in admissions folders for the computer. Sample sizes were too small to yield statistically significant results for the other comparisons. It was possible to do separate analyses of older and younger students by sex.

RESULTS

Descriptive statistics (means and standard deviations) for the key variables in this study are shown in Table 2.

Age. The average age for all older students is 23, with a range of 21 to 63. For younger students, the average age is 19 with a range of 16 to 21. Thus, the average age difference in the two groups is four years. As can be seen from Table 2, the females in the older sample are somewhat older than the males.

SAT Scores. Combined SAT scores were higher for males than for females in both younger and older groups. In the younger group males averaged 972 versus 903 for females, a difference of 69 points. In the older group males averaged 956 versus 911 for the females, a difference of 45 points. Younger males scored higher than older males by 16 points (972 versus 956), but older women outperformed younger women by 8 points (911 versus 903).

In the two colleges that reported SAT-verbal and SAT-mathematical scores separately, both older males and females scored higher on the SAT-verbal section than did the younger members of their sexes. In College B older males averaged 17 points over the younger males (446 versus 429). The scores of older females averaged 35 points above younger females (459 versus 424). In College C older males scored 27 points higher than younger males (525 versus 498). The scores of older females averaged 42 points higher than for younger females (507 versus 465). In both Colleges B and C the differences for older versus younger females were greater than the differences for older versus younger males. These findings support other work showing that verbal ability continues to increase in the adult years. The SAT-verbal scores of older students have more variance than those of younger students.

On the SAT-mathematical section, the younger students in Colleges B and C, on the average, outperformed the older students; this suggests that recentness of mathematics instruction and continued practice in using mathematics may have an effect on this score. Males in both these colleges reporting separate scores received higher SAT-mathematical scores than females in their age group. And in College B, younger males' scores averaged 42 points higher than older males (502 versus 460). However, in College C the SAT-mathematical scores for younger and older males were close, with the older males holding a 4-point advantage (555 versus 551). In both Colleges B and C, older women had lower SAT-mathematical scores than younger women. In College B the difference was 18 points (437 versus 455). In College C the difference was 38 points (460 versus 498).

High School Grades. Younger students had consistently higher high school grades than the older students, although the magnitude was not always large enough to be significant.

Table 2. Descriptive Statistics, by Institution, Age, and Sex

	Younger				*Older*			
	Males		*Females*		*Males*		*Females*	
	M	*S.D.*	*M*	*S.D.*	*M*	*S.D.*	*M*	*S.D.*
College A	*N = 224*		*N = 300*		*N = 72*		*N = 88*	
Age	19.96	.22	19.94	.23	22.03	4.04	22.31	2.84
SAT-V and SAT-M	937.3	160.1	866.7	163.2	881.5	194.3	869.8	167.2
High school GPA	3.09	.41	3.21	.40	2.95	.46	3.20	.37
College freshman GPA	2.56	.79	2.61	.77	2.47	.79	2.59	.86
College B	*N = 169*		*N = 209*		*N = 57*		*N = 75*	
Age	19.17	.46	19.10	.55	22.65	2.08	23.93	4.39
SAT-V	429.4	105.5	424.3	97.3	446.1	128.3	459.2	121.8
SAT-M	502.4	111.1	454.9	95.9	460.0	108.7	437.1	101.7
High school GPA	3.00	.58	3.11	.69	2.88	.50	3.07	.49
College freshman GPA	2.13	.75	2.36	.80	2.16	.95	2.58	.90
College C	*N = 99*		*N = 98*		*N = 99*		*N = 50*	
Age	18.35	.58	18.13	.40	23.77	5.15	25.14	5.81
SAT-V	497.6	88.2	465.1	84.2	525.1	96.4	507.0	105.9
SAT-M	551.4	87.9	498.1	88.3	554.6	90.5	459.6	75.6
High school percentile rank	71.87	19.99	78.60	17.02	57.23	25.28	70.88	17.49
College freshman GPA	2.43	.80	2.71	.76	2.46	1.02	2.87	.86

Table 3. Correlation Between Predictor Variables and College Freshman GPA

	Younger				*Older*			
	Males		*Females*		*Males*		*Females*	
	Single	*Multiple**	*Single*	*Multiple**	*Single*	*Multiple**	*Single*	*Multiple**
College A	*N-224*							
SAT-V & M	.401	.401	.461	.461	.498	.498	.532	.532
High school GPA	.407	.494	.525	.586	.453	.576	.220	.543
N	224		300		72		88	
College B								
SAT-verbal scores	.367	.367	.450	.450	.330	.330	.339	.339
SAT-mathematical scores	.447	.464	.450	.514	.420	.430	.250	.374
High school GPA	.353	.498	.222	.517	.463	.534	.218	.384
N	169		209		57		75	
College C								
SAT-verbal scores	.236	.236	.334	.334	.343	.343	.178	.178
SAT-mathematical scores	.330	.340	.471	.482	.331	.423	.269	.280
High school percentile rank	.536	.553	.454	.566	.269	.467	.294	.415
N	99		98		99		50	
Average multiple correlation**		.515		.556		.526		.447

*Multiple correlations are cumulative; they show the effect on the validity as variables are added to the set of predictors.
**Giving equal weight to each college.

Table 4. Correlations Between Age and College Freshman GPA

College	*Younger Males**	*Younger Females**	*Older Males**	*Older Females**
A	.061(224)	.052(300)	−.154(72)	.196(88)
B	−.083(169)	−.112(209)	.029(57)	.338(75)
C	−.211(99)	−.022(98)	.077(99)	.189(50)

*Sample sizes are shown in parentheses.

This difference may be due to recent grade inflation. On the other hand, many of the older students interviewed reported "problems" or "disinterest" with high school as reasons why they did not enter college immediately. Females in both age groups had consistently higher high school grades than the males.

College Freshman GPA. Average freshman grades for older and younger males were almost identical (2.37 versus 2.36). However, older females averaged somewhat higher GPAs (2.68) than younger females (2.56); older females also averaged somewhat higher GPAs than older males (2.36). The older groups of students, both male and female, had wider variance in their college grades than did the younger students. In college, as in high school, the females obtained higher GPAs. The mean grade difference between younger males and younger females was .19 (males 2.37, females 2.56).

Correlations. Single and multiple correlations between the predictor variables (SAT scores and high school grades) are shown in Table 3. Note that for College A the SAT scores are combined. Therefore, there are only two predictor variables; in the other two colleges, where separate SAT-verbal and SAT-mathematical scores were available, three predictor variables were used. In the multiple correlations, the SAT scores were entered before high school grades. As can be seen, there are considerable differences by institution, as well as by age and by sex. The average multiple correlation is somewhat lower for older females than for the other groups. In all three colleges the multiple correlation for younger females was greater than for older females.

Although age was not treated as a predictor variable in this study, correlations between age and college GPA were obtained. These are shown in Table 4. Age appears to be positively related to college GPA for older females (average GPA correlation was .241) but is of little practical significance in the other populations.

Prediction. Multiple regression coefficients, shown in Table 5, are perhaps the best way of showing the relationship between the predictor variables and freshman GPA. Coefficients significant at the .05 level or beyond are marked with an asterisk (*).

High school grades are significant predictors for all males, at all colleges. For females, there are considerable institutional differences in the predictive ability of high school grades; these differences do not appear to have a systematic relationship with age.

The test scores also show considerable variation in their predictive ability from institution to institution and group to group. However, SAT-verbal and the SAT-mathematical scores appear to be better predictors for younger females than for older females in both institutions where separate scores on SAT-verbal and SAT-mathematical sections are available.

Overall, high school grades are the best predictor for male students of all ages. The SAT, on the other hand, is the best predictor for older females. Grades and the SAT predict about equally well for younger females.

Are SAT scores useful in making admissions decisions for older students? Apparently yes. They appear to be especially useful for older females. However, the institutional differences found in this study are so great that no unequivocal statement can be made.

Table 5. Regression Weights for Predicting College Freshman GPA

	Younger Males	*Younger Females*	*Older Males*	*Older Females*
College A				
SAT-verbal and SAT-mathematical scores	.297*	.287*	.383*	.508*
High school GPA	.306*	.401*	.311*	.112
N	224	300	72	88
College B				
SAT-verbal scores	.150*	.287*	.125	.285*
SAT-mathematical scores	.274*	.278*	.196	.115
High school GPA	.199*	.057	.349*	.103
N	169	209	57	75
College C				
SAT-verbal scores	.056	.092	.284*	.119
SAT-mathematical scores	.118	.307*	.197*	.225
High school percentile rank	.459*	.319*	.207*	.308*
N	99	98	99	50

*Equals regression weight significant at .05 level.

Table 6. Results of Significance Tests Based on Regression Equations for Younger Males, Younger Females, Older Males, and Older Females

College	Significance Levels		
	Errors of Estimate	*Slopes*	*Intercepts*
A	Not significant	Not significant	Not significant
B	Less than .05	Not significant	Less than .01
C	Less than .01	Not significant	Less than .01

Table 7. Mean Actual and Predicted Grades for Younger Males (YM), Younger Females (YF), Older Males (OM), and Older Females (OF)

College	Predictors	Group	N	Mean Grade			Standard Error of Estimate
				Actual	*Predicted*	*Difference*	
A	SAT-verbal and	YM	224	2.56	2.62	−.06	.69
	SAT-mathematical scores	YF	300	2.61	2.58	+.03	.63
	High school GPA	OM	72	2.47	2.45	+.02	.66
		OF	88	2.59	2.58	+.01	.73
B	SAT-verbal and	YM	169	2.13	2.36	−.23	.66
	SAT-mathematical scores	YF	209	2.36	2.28	+.08	.69
	High school GPA	OM	57	2.16	2.29	−.13	.83
		OF	75	2.58	2.30	+.28	.85
C	SAT-verbal and	YM	99	2.43	2.72	−.29	.68
	SAT-mathematical scores	YF	98	2.71	2.64	+.07	.64
	High school percentile rank	OM	99	2.46	2.58	−.12	.92
		OF	50	2.87	2.53	+.34	.81

Should separate prediction equations be used for older and younger students? To obtain guidance on this question, a Gulliksen-Wilks analysis of covariance was done for each of the colleges. Results are shown in Table 6. This approach provides a significance test for differences in errors of estimate, in regression coefficients, and in intercepts for regression equations based on different groups. In this study, it was decided to apply the tests to the four groups of interest: older and younger females and older and younger males. For College A, no significant differences were found, suggesting that for this college, there would be little advantage in using a different equation for each group. For Colleges B and C, however, there were significant differences in errors of estimate and in intercepts, but not in the regression coefficients, which represent the slopes of regression planes. (Strictly speaking, the significant difference in errors of estimate makes the results of the test for differences in slopes ambiguous.)

Table 7 shows the errors of estimate for the four groups. It is clear that errors of estimate are larger for the two older groups than for the two younger groups in Colleges B and C. This result indicates that actual grades tend to differ more from predicted grades for older students when predictions are based on regression equations calculated for each group separately. This finding, which seems reasonable, suggests that somewhat less confidence can be placed in predicted grades for older students in these colleges. Table 7 also shows the difference between predicted and actual grades when an appropriate common regression equation is used for all four groups. (The common regression equation uses the slopes developed in connection with the test for equality of slopes.) Results for Colleges B and C for differences between actual and predicted grades are rather similar. Older females, and to a lesser extent, younger females, do better than expected while younger males, and to a lesser extent, older males do less well than expected. Although these differences are small in comparison with the standard error of estimate, they should be useful in interpreting the predicted grades for members of the four groups in Colleges B and C.

These results do not, of course, provide a clear-cut answer to the question of using separate prediction equations for the four groups studied. The results do provide evidence that, in two of the three colleges, there were noticeable differences in performance relative to prediction among the four groups when a common prediction equation was used.

INTERVIEWS WITH STUDENTS

Although the average age of older students in the statistical analysis of this study was 23, the students interviewed were significantly older. They ranged in age from the early twenties to the late fifties – however, about three-quarters of them were in their late twenties to mid-thirties (the post World War II "baby boom" group). In Colleges A and B nearly equal numbers of men and women were interviewed, and most were part-time students. In College C, where all students are full-time, the interviewees were mostly women. Although about half were in the class on which the statistical study was based, other classes were represented as well. At each institution, at least ten interviews were arranged by the cognizant dean. The visits ranged from two to three days to give the author a sense of the diversity of the older-student body. During the visits, other students were added or added themselves to the schedule. Still other students were interviewed informally at a drop-in center for older students (Campus A), a women's center (Campus C), and at the cafeteria tables set aside by custom for older commuters (Campus B).

Since all interviewees had supposedly taken the SAT just prior to admittance to their universities, the first questions were about having to submit an SAT score as part of the admissions requirements.

Students generally agreed, after the fact, that the SAT had a legitimate place in the admissions procedures. Indeed, to many in their late twenties and early thirties, the test had proved a useful tool for predicting not how well they would do in college but whether or not they could do college work at all. In this age group were a number who had been temporary victims of the turbulent late 1960s. Some had dropped out of high school. Some had run away from home, had become involved in the drug culture, or had become parents well before they were 20. For this group (a majority of the interviewees at Campus A), the SAT was seen as the ultimate hurdle to a "second chance at life," and making up one's mind to take it was traumatic. This was exacerbated by their confusion of the SAT with achievement tests and with ACT. About one-third of the interviewees had finally "gotten up nerve to hit the SAT preparation books" and found them "useful." Another fourth, after reading the SAT descriptive booklet, had conscientiously looked up every unknown word they ran across for several months before the test or had been "more careful" in their reading, while another fourth, mostly men, had taken a "gambling attitude" and decided to "let the chips fall . . . ."

The students of the same age group (28-35) on Campus B reported having had less anxiety about the prospect of taking the SAT. Some had taken it before, although few could remember their earlier scores, and others, who had not taken it before, had "sat for other exams since leaving high school and survived." These exams were in real estate, practical nursing, banking, and so on. Even so, one-third reported a great deal of pretest anxiety. One woman in her late thirties said she couldn't help feeling, for more than a year, that it was a "test of my ultimate worth as a person" – until her daughter came home from school saying she herself had to take it. "Then I saw how silly that was and we ended up taking it together. She did better on the math," the woman added shyly.

It is interesting that on both Campus A and B, less than a handful of older students reported reviewing mathematics specifically even though they made attempts to read more carefully and increase their vocabularies. About one-fifth did use mathematics in their work, but this "did not seem to help on the test." Two engineering aides reported studying the "wrong math." "I haven't thought about that stuff in ages," said one. Others were "thrown" by the geometry items. "I knew those relationships once, but not now," said another.

On Campus C pretest anxiety was minimized by channeling all prospective students who needed to take the test through the Measurement and Guidance Center. In this center, professionals spend as much time as is needed to explain to students just what the SAT is and is not, how to prepare for it, and what strategies to use in actually taking the test. Students on this campus reported being comparatively relaxed before the test because there was "no unknown magic" to it.

The few students interviewed on each campus who were over 35 reported much greater pretest equanimity than had most of the late twenties-early thirties group, perhaps because they had led less turbulent lives and saw themselves as "growing toward new goals" rather than making up for something they "should have done before." Then, too, they had seen more of life.

About half the interviewees across campuses were unsure whether or not they had taken the SAT in high school. Some had "vague memories of it or something like it." One-fourth knew they hadn't taken it because they either had not been in the precollege curriculum or had "known" (while in high school) they weren't going to college. Several knew they had taken it but "couldn't remember what their scores were." And the remainder assumed they had not taken it because they had dropped out of high school.

After the fact, the verbal portion of the SAT was generally seen as fair and certainly relevant to success in college. There was disagreement about the mathematical portion, however. Those students in programs requiring little mathematics predictably found the mathematical section difficult and irrelevant. But as mentioned before, several students who were already working with mathematics in their jobs were also unhappy with the mathematical section of the SAT because it was of too low a level or they had forgotten the concepts. "I remember loving geometry in high school and really did well, but those relationships were no longer automatic. It really slowed me up," one student said.

When asked how well the test reflected their own ability, interviewees had difficulty answering. A few, most-

ly women, reported doing much better than they had thought they would and that the test results "gave them a boost." "But that doesn't answer the question, does it?" remarked one woman in her early forties. In this context most students brought up motivation and goal orientation as being equally or more important for their success.

What were the goals that brought these people back to college? For most men, the goal was to increase skills so as to progress in a field they were already pursuing or one to which they were closely allied. For example, programmers wanted to become systems analysts or move into hard- or software sales or design. Two draftsmen wanted to become engineers. A worker in a poverty program wanted to become a lawyer in public defense. An artist and a carpenter wanted to teach (art and industrial arts, respectively) and needed the credentials to do so.

The goals of the women were much more diverse. A large group of them were very much like the men in wanting to continue in a field they were already in. A great proportion of them on one campus were practical nurses and were studying for their Bachelor of Science degrees and registered nurse credentials because of an impending change in state licensing laws and because "nursing has changed so much." Several were aiming beyond the B.S. degree – toward nurse-practitioner and midwife credentials. Two very successful businesswomen – one about to be made a corporate officer – needed the degree because "management likes to have college graduates in [my] position."

To another group of "younger" older women who were single parents, college provided the avenue to mobility and independence. College had been suggested to five by welfare case-workers who also arranged day care and after-school care for the women's young children. These women were entering a diverse range of fields, from horticultural science to biology on through the human services fields. In contrast were two other young women who had put their husbands through college. Their spouses were now returning the favor. One of these women was embarking on a long journey to a career in medicine with her husband's full support. The other was headed for law.

Only three women and one man, each over 35, were in college for pure joy and intellectual fullfillment and expected no change in lifestyle other than greater personal satisfactions to come about because of the experience. These four were the only students who were not juggling college work with other major responsibilities.

We know that students entering college directly from high school have a variety of goals, attitudes, and values. They also differ in aptitudes and life circumstances, which make success in college as measured by grades easier or harder to achieve. After talking with older students, it is felt these differences are magnified for the older group. In groups of younger as well as older students there are some who only want the degree; for them, getting by is enough. Younger students with this goal in these times are not likely to have high college GPAs. The two women executives in our study, each of whom had combined SAT scores of more than 1,300, were exactly in that position, not from choice but because they were juggling professional responsibilities with motherhood (each had three children) and hour-long commutes to college three times a week. Both reported they would have liked the luxury of doing really good work, but neither could afford it. The welfare mothers as a group did better than they or the college expected in spite of a multiplicity of children (possibly because of the availability of child-care services for them). Helping mother do well in college became a cooperative effort in these welfare families, and grades were important to all. (To aid student mothers, the women's center at one university distributes a cookbook for and by children – the recipes are flexible and cooking times are not critical.)

Older men also varied in their priorities. Some were pursuing the degree only as a credential while others wanted to acquire specific knowledge and skills. Sometimes the latter group reported slacking off on courses that "weren't relevant" to their fields. Men, too, had job responsibilities but, with one exception, did not have primary responsibilities for child care.

To sum up, it seems that separate regression equations for the adults interviewed would add little over the equations used for all students by the colleges unless one could also add variables for life circumstances. Such an equation would indeed be complicated. It would have to include not only number, ages, and health of children for whom one has responsibility (total or joint), but employment, a stress index, and an indicator of the true balance between academic and other goals, as well. As one frazzled single working parent of four put it: "I wish I'd known what I wanted to do when I was eighteen. At least I'd have had time to do it."

THOUGHTS ON ALTERNATIVE ADMISSIONS PROCEDURES FOR OLDER CANDIDATES

It was mentioned earlier that, as colleges were sought for the validity studies reported in Section I, a number of institutions that had dropped the SAT requirement for their older applicants as found. Summarized briefly in this section is what the authors learned about the thinking behind this practice from interviews with the college representatives.

The colleges' decision to waive the SAT requirement for older candidates is based only partly on judgments about the test's reliability and validity for adults. Other factors enter in. The two strongest and most pervasive of these are, on the one hand, administrators' perception of the institutions' mission – i.e., their responsibility to adult learners and to the larger society – and on the other hand, administrators' preoccupation with the practical and mundane problems of economic survival that exist in the "post-baby-boom" era.

Some college representatives are concerned specifically with the statistical properties of SAT scores for older students. Are old scores, earned during high school, valid after five, ten, or more years? Would more recent scores have greater validity? If so, is it fair to ask older adults to submit to test taking that is perceived as a high school activity?

Unfortunately, the present research cannot answer the first set of questions having to do with the varying ages of SAT scores and the validity of the scores for older students because, as mentioned before, the colleges dealt with in this study did not record the SAT administration date along with the scores when student records were computerized.

An answer can be given to the question of fairness, however, at least from the older students' point of view. The requirement is fair, according to those students, particularly if the candidate is given accurate prior information about the test, counseling that puts the SAT in perspective, and time for preparatory review – in short, the kind of preparation the student would receive in a high school attentive to students' needs.

Several admissions officers voiced a fear that colleges' requiring the SAT might drive prospective older students away, especially if they had already taken the test in high school and remembered doing poorly. This fear of intimidating worthy prospective older students is particularly acute when an initial review of a prospective student's academic record reveals weaknesses that had arisen from adolescent "boredom, sickness, inattention, or folly," as the dean of admissions of one college put it.

Another problem is, specifically, that old SAT scores are less in favor as a predictor because the colleges now recognize that the SAT-mathematical scores are affected by current or recent study (or use) of appropriate mathematics. "Perhaps a similar thing goes on with the SAT-verbal section," mused one admissions counselor. This speculation is a curious attenuation of an observation often contradicted by the experience of other colleges that *did* require the SAT and have recent as well as old SAT scores for some of their candidates. Admissions officers of such colleges observe that while the SAT-mathematical score does decline with years away from study or use, verbal abilities rise over time.

Several admissions officers (from colleges that waive the SAT requirement) who were interviewed said that the HSR was a better predictor than SAT scores because it represented "four years' rather than a morning's work." Yet, many in this group also reported giving greater weight to activities adults had engaged in since the high school years because in high school "some kids don't have it together." All in all, much circular and confused thinking about the relative merits of the HSR and the SAT was encountered. The validity studies reported earlier may help to end that confusion even though old scores are mixed in with recent scores.

About half the institutions represented in the telephone inquiry of this study require older candidates to take some sort of locally administered college readiness test or diagnostic battery. These may be locally developed or constitute a combination of tests from several sources, including the School and College Ability Test (SCAT) and psychological tests designed specifically for adults.

Some colleges, many of them in New Jersey, ask older candidates to take the CLEP General Examinations. Many students, too, opt to take additional CLEP tests for course credit. CLEP has the advantage of establishing the candidate's ability to carry on college-level work; it also provides adults the opportunity to earn college credits. Administrators of the colleges that had used CLEP were happy with the arrangement – they felt it benefited both college and student.

Another group of four-year institutions used community colleges as their "sifters." Admissions officers advised older candidates about whom there were doubts to study for one semester in a two-year institution. The officers also spelled out the grades that would be acceptable for transfer credit.

A somewhat similar scheme was used by other colleges; i.e., they permitted anyone with a high school diploma to take two courses at the college as nonmatriculants. If those students earned sufficiently high grades, the record could be used to establish a college GPA, and the student would be admitted to regular matriculant status.

Although a few college admissions officers mentioned that they looked at intervening experiences (those occuring between high school and college admission) in assessing the credentials of older candidates, the colleges were not ready to pinpoint how they evaluated such experiences. The appropriate questions were asked, but the authors did not persist when answers were not forthcoming, since how colleges assess experiential learning was not the focus of this study.

SUMMARY

In summary, the following conclusions are presented:

To Universities and Colleges

The SAT clearly contributed enough to the validity of the institutions' admissions decisions with regard to older students to warrant the test's use. The results of this study also suggest that older female students earn somewhat higher college GPAs and SAT-verbal scores and somewhat lower SAT-mathematical scores than do younger female students.

Regression analysis indicates that older female students earn appreciably higher college grades than would be expected on the basis of their test scores and HSR in two of the colleges in the present study. In these same colleges, the grades of younger females are slightly underpredicted, the grades of older males are slightly overpredicted, and the grades of younger males are appreciably overpredicted. However, since individual colleges attract populations of

older students that are quite different from one another, officials of colleges might wish to conduct local SAT validity studies for older and younger students to establish appropriate local prediction formulas. In doing such studies, colleges should note the date the SAT was taken so that the relative validity of SAT scores earned near the time of admissions versus earlier scores can also be studied.

The results of the present study may be compared with certain results reported by the ACT Program (1973). The authors of that study reported first: "Many colleges have noted that their older students obtain higher grades than those predicted from test scores and high school grades. . . . This observation was confirmed in the cases analyzed here" (p. 264). The present study confirms this finding with respect to older females but not to older males. (The ACT Program report did not distinguish between males and females.)

The authors of the ACT report further noted: "Rarely does an institution enroll enough older students to compute stable separate within-group regression equations" (p. 264). The authors of this study feel that the situation has changed dramatically in the past ten years for many institutions. In many colleges there are now enough older students to compute separate within-group regression equations.

The ACT Program report continues: "Some have suggested the elimination of the use of test scores with adults, but analyses here suggest that test scores will tend to be better predictors of college grades than are high school grades in this group" (p. 264). Ten years later, the authors of this study also heard the suggestion to eliminate test scores for older students. But the results of this study agree that *both* test scores and HSR are useful for older students – test scores and HSR appear about equally useful overall, but the respective weights of test scores and HSR in prediction vary by sex and age within and between colleges. By and large, using both test scores and HSR improves the prediction significantly over either predictor used alone. On the whole then, the results of the two studies are in general agreement although the studies differ in detail.

To the College Board

As cohorts of adult students become larger and more important to member institutions, and hence to the College Board, further research on them will be needed. This research will be simplified and enhanced if steps are taken to ensure ready identification of such students – by age at the time of candidacy – in Educational Testing Service files.

The Board might wish to prepare a statistical guide to assist colleges in making such studies. As part of its validity study service, the Board might also provide explicit plans for such studies for colleges with a particular interest in making the studies.

The College Board could provide a great service to older candidates and ultimately to member institutions by publishing a special booklet addressing the special concerns of those adults who are thinking about returning to formal study after some time away from the classroom. Included in such a booklet would be an expanded explanation of what the SAT is and what it measures and what it is not: a subject-matter achievement test. Information about the mathematical section should be highlighted along with suggestions as to how and where prospective students long away from school can review the mathematics required.

Perhaps most important of all is for the Board to support research and development activities to prepare affirmative ways of assessing adult experience.

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